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Role of Chloride on the Fracture Behaviour of Micro-alloyed Steel in E20 Simulated Fuel Ethanol Environment

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Abstract

The need to fully comprehend the potential of pipelines in fuel ethanol applications has necessitated this study. The influence of chloride in E20 on fracture toughness and tearing resistance of micro-alloyed steel (MAS) was studied with three-point bend specimens. Monotonic J-integral tests were conducted with and without chloride. Results show a decrease in fracture toughness of MAS in the presence of chloride, and a concurrent increase in its ductile tearing resistance. Fractographic examinations showed that chloride in E20 promoted quasi-cleavage fracture.

Keywords

Chloride Fracture Micro-alloyed steel SFGE E20

Notes

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